Niagara Mohawk

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August 29, 2000
NMP1L 1531

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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

***Subject:*** ***January - June 2000 Semi-Annual Radioactive Effluent Release Report***

Gentlemen:

In conformance with the Nine Mile Point Unit 1 (NMP1) Technical Specifications, we are enclosing the Semi-Annual Radioactive Effluent Release Report for the reporting period January - June 2000. Included in this report is a summary of gaseous, liquid, and solid effluents released from the station during the reporting period (Attachments 1 - 6), a summary of revisions to the Offsite Dose Calculation Manual and the Process Control Program during the reporting period (Attachments 7 and 8), and an explanation as to the cause and corrective actions regarding the inoperability of any station liquid and/or gaseous effluent monitoring instrumentation (Attachment 9).

The format used for the effluent data is outlined in Appendix B of Regulatory Guide 1.21, Revision 1. Dose assessments were made in accordance with the NMP1 Offsite Dose Calculation Manual. Distribution is in accordance with 10CFR50.4(b)(1) and the Technical Specifications.

Attachment 10 to this report is an update of actual data for the fourth quarter 1999 used in the July - December 1999 Semi-Annual Radioactive Effluent Release Report.

During the reporting period from January - June 2000, NMP1 did not exceed any 10CFR20, 10CFR50, or Technical Specification limits for gaseous or liquid effluents.

If you have any questions concerning the attached report, please contact Mr. Anthony M. Salvagno, (315) 349-1456, Engineering Services, Nine Mile Point.

Very truly yours,

Richard B. Abbott
Vice President Nuclear Engineering

RBA/CLW/kap
Attachments

IE48

xc: Mr. H. J. Miller, Regional Administrator, Region I
Ms. M. K. Gamberoni, Section Chief PD-I, Section 1, NRR
Mr. G. K. Hunegs, NRC Senior Resident Inspector, Region I
Mr. P. S. Tam, Senior Project Manager, NRR
Records Management

# NINE MILE POINT NUCLEAR STATION - UNIT 1

# SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

**January – June 2000**

*NIAGARA MOHAWK POWER CORPORATION*

# NINE MILE POINT NUCLEAR STATION - UNIT 1

# SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

# JANUARY – JUNE 2000

# SUPPLEMENTAL INFORMATION

**Facility:** **Nine Mile Point Unit #1** **Licensee:** **Niagara Mohawk Power Corporation**

1. TECHNICAL SPECIFICATION LIMITS

A) FISSION AND ACTIVATION GASES

1. The dose rate limit of noble gases released in gaseous effluents from the site to areas at and beyond the site boundary shall be less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin.

2. The air dose due to noble gases released in gaseous effluents from Nine Mile Point Unit 1 to areas at and beyond the site boundary shall be limited during any calendar quarter to less than or equal to 5 milliroentgen for gamma radiation and less than or equal to 10 mrad for beta radiation, and during any calendar year to less than or equal to 10 milliroentgen for gamma radiation and less than or equal to 20 mrad for beta radiation.

B&C) TRITIUM, IODINES AND PARTICULATES, HALF LIVES > 8 DAYS

1. The dose rate limit of Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half-lives greater than eight days, released in gaseous effluents from the site to areas at and beyond the site boundary shall be less than or equal to 1500 mrem/year to any organ.

2. The dose to a member of the public from Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from Nine Mile Point Unit 1 to areas at and beyond the site boundary shall be limited during any calendar quarter to less than or equal to 7.5 mrem to any organ and, during any calendar year to less than or equal to 15 mrem to any organ.

D) LIQUID EFFLUENTS

1. The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2E-04 microcuries/ml total activity.

2. The dose or dose commitment to a member of the public from radioactive materials in liquid effluents released from Nine Mile Point Unit 1 to unrestricted areas shall be limited during any calendar quarter to less than or equal to 1.5 mrem to the total body and to less than or equal to 5 mrem to any organ, and during any calendar year to less than or equal to 3 mrem to the total body and to less than or equal to 10 mrem to any organ.

## 2. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

Described below are the methods used to measure or approximate the total radioactivity and radionuclide composition in effluents.

### A) FISSION AND ACTIVATION GASES

Noble gas effluent activity is determined by on-line gamma spectroscopic monitoring (intrinsic germanium crystal) or gross activity monitoring (calibrated against gamma isotopic analysis of a 4.0L Marinelli grab sample) of an isokinetic stack sample stream.

### B) IODINES

Iodine effluent activity is determined by gamma spectroscopic analysis (at least weekly) of charcoal cartridges sampled from an isokinetic stack sample stream.

### C) PARTICULATES

Activity released from the main stack is determined by gamma spectroscopic analysis (at least weekly) of particulate filters sampled from an isokinetic sample stream and composite analysis of the filters for non-gamma emitters.

### D) TRITIUM

Tritium effluent activity is measured by liquid scintillation or gas proportional counting of monthly samples taken with an air sparging/water trap apparatus.

### E) EMERGENCY CONDENSER VENT EFFLUENTS

The effluent curie quantities are estimated based on the isotopic distribution in the Condensate Storage Tank water and the Emergency Condenser shell water. Actual isotopic concentrations are found via gamma spectroscopy. Initial release rates of Sr-89, Sr-90 and Fe-55 are estimated by applying scaling factors to release rates of gamma emitters and actual release rates are determined from post offsite analysis results. The activity of fission and activation gases released due to tube leaks is based on reactor steam leak rates using offgas isotopic analyses.

### F) LIQUID EFFLUENTS

Isotopic contents of liquid effluents are determined by isotopic analysis of a representative sample of each batch and composite analysis of non-gamma emitters.

### G) SOLID EFFLUENTS

Isotopic contents of waste shipments are determined by gamma spectroscopy analysis of a representative sample of each batch. Scaling factors established from primary composite sample analyses conducted off-site are applied, where appropriate, to find estimated concentration of non-gamma emitters. For low activity trash shipments, curie content is estimated by dose rate measurement and application of appropriate scaling factors.

# ATTACHMENT 1

Summary Data



Unit 1 X Unit 2 __ Reporting Period January – June 2000

**Liquid Effluents:**

10CFR20, Appendix B, Table II, Column 2

Average MPC - uCi/ml (Qtr. 1) = N/A
Average MPC - uCi/ml (Qtr. 2) = N/A

**Average Energy (Fission and Activation gases – Mev):**

| | | |
|---|---|---|
| Qtr. 1 : | $\bar{E}\gamma$ = **0.247** | $\bar{E}_\beta$ = **0.317** |
| Qtr. 2 : | $\bar{E}\gamma$ = **0.165** | $\bar{E}_\beta$ = **0.293** |

**Liquid:**

| | | 1st | 2nd |
|---|---|---|---|
| Number of batch releases | : | **0** | |
| Total time period for batch releases (hrs) | : | **N/A** | |
| Maximum time period for a batch release (hrs) | : | **N/A** | |
| Average time period for a batch release (hrs) | : | **N/A** | |
| Minimum time period for a batch release (hrs) | : | **N/A** | |
| Total volume of water used to dilute the liquid effluent during release period (L) | : | **N/A** | **N/A** |
| Total volume of water used to dilute the liquid effluent during reporting period (L) | : | **1.30E+11** | **1.26E+11** |

**Gaseous (Instrument Calibration, there were no releases from the operation of the Emergency Condenser Vent):**

| | | |
|---|---|---|
| Number of batch releases | : | **1** |
| Total time period for batch releases (hrs) | : | **2.78E-04** |
| Maximum time period for a batch release (hrs) | : | **2.78E-04** |
| Average time period for a batch release (hrs) | : | **2.78E-04** |
| Minimum time period for a batch release (hrs) | : | **2.78E-04** |

**Gaseous (Primary Containment Purge):**

| | | |
|---|---|---|
| Number of batch releases | : | **2** |
| Total time period for batch releases (hrs) | : | **2.45E+01** |
| Maximum time period for a batch release (hrs) | : | **1.24E+01** |
| Average time period for a batch release (hrs) | : | **1.23E+01** |
| Minimum time period for a batch release (hrs) | : | **1.22E+01** |

**ATTACHMENT 1**

Summary Data



| | |
|---|---|
| Unit 1 X Unit 2 __ | Reporting Period **January – June 2000** |
| **Abnormal Releases:** | |
| **A. Liquids:** | |
| Number of releases | **0** |
| Total activity released | **N/A** Ci |
| **B. Gaseous:** | |
| Number of releases | **0** |
| Total activity released | **N/A** Ci |

# ATTACHMENT 2

Unit 1 **X** Unit 2 __ Reporting Period **January – June 2000**

**GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES, ELEVATED AND GROUND LEVEL**

| | | | 1st QUARTER | 2nd QUARTER | EST. TOTAL ERROR, % |
|---|---|---|---|---|---|
| A. | Fission & Activation gases | | | | |
| | 1. Total release | Ci | **8.73E-04** | **1.48E-03** | 5.00E+01 |
| | 2. Average release rate | μCi/sec | **1.11E-04** | **1.88E-04** | |
| B. | Iodines | | | | |
| | 1. Total Iodine-131 | Ci | **1.20E-05** | **7.06E-05** | 3.00E+01 |
| | 2. Average release rate for period | μCi/sec | **1.55E-06** | **8.98E-06** | |
| C. | Particulates[1] | | | | |
| | 1. Particulates with half-lives >8 days | Ci | **1.38E-04** | **1.57E-03** | 3.00E+01 |
| | 2. Average release rate for period | μCi/sec | **1.78E-05** | **2.01E-04** | |
| | 3. Gross alpha radioactivity | Ci | **3.38E-05** | **4.18E-05** | 2.50E+01 |
| D. | Tritium[1] | | | | |
| | 1. Total release | Ci | **4.21E+01** | **4.38E+01** | 5.00E+01 |
| | 2. Average release rate for period | μCi/sec | **5.42E+00** | **5.60E+00** | |
| E. | Percent of Tech. Spec. Limits | | | | |
| | Fission and Activation Gases | | | | |
| | Percent of Quarterly Gamma Air Dose Limit (5 mR) | % | **7.06E-06** | **7.92E-06** | |
| | Percent of Quarterly Beta Air Dose Limit (10 mrad) | % | **4.51E-06** | **5.77E-06** | |
| | Percent of Annual Gamma Air Dose Limit to Date (10 mR) | % | **3.53E-06** | **7.49E-06** | |
| | Percent of Annual Beta Air Dose Limit to Date (20 mrad) | % | **2.26E-06** | **5.15E-06** | |
| | Percent of Whole Body Dose Rate Limit (500 mrem/yr) | % | **1.86E-07** | **2.10E-07** | |
| | Percent of Skin Dose Rate Limit (3000 mrem/yr) | % | **8.24E-08** | **9.91E-08** | |
| | Tritium, Iodines, and Particulates[1] (with half-lives greater than 8 days) | | | | |
| | Percent of Quarterly Dose Limit (7.5 mrem) | % | **2.02E-01** | **4.46E-01** | |
| | Percent of Annual Dose Limit (15 mrem) | % | **1.02E-01** | **3.58E-01** | |
| | Percent of Organ Dose Rate Limit (1500 mrem/yr) | % | **4.11E-03** | **9.01E-03** | |

[1] Tritium, Iron-55, and Strontium results for the second quarter were not received from the off-site vendor at the time of this report. These numbers include estimates, and actual numbers will be provided in the next Semi-Annual Report.

# ATTACHMENT 3

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**GASEOUS EFFLUENTS – ELEVATED RELEASE**

| Nuclides Released | | | CONTINUOUS MODE 1st QUARTER | CONTINUOUS MODE 2nd QUARTER | BATCH MODE 1st QUARTER | BATCH MODE 2nd QUARTER |
|---|---|---|---|---|---|---|
| 1. | Fission Gases[1] | | | | | |
| | Argon-41 | Ci | ** | ** | No Releases | ** |
| | Krypton-85 | Ci | ** | ** | No Releases | 4.75E-04 |
| | Krypton-85m | Ci | ** | ** | No Releases | ** |
| | Krypton-87 | Ci | ** | ** | No Releases | ** |
| | Krypton-88 | Ci | ** | ** | No Releases | ** |
| | Xenon-127 | Ci | ** | ** | No Releases | ** |
| | Xenon-131m | Ci | ** | ** | No Releases | 1.82E-06 |
| | Xenon-133 | Ci | ** | ** | No Releases | 2.14E-05 |
| | Xenon-133m | Ci | ** | ** | No Releases | ** |
| | Xenon-135 | Ci | ** | ** | No Releases | ** |
| | Xenon-135m | Ci | ** | ** | No Releases | ** |
| | Xenon-137 | Ci | ** | ** | No Releases | ** |
| | Xenon-138 | Ci | ** | ** | No Releases | ** |
| 2. | Iodines[1] | | | | | |
| | Iodine-131 | Ci | 1.20E-05 | 7.06E-05 | No Releases | ** |
| | Iodine-133 | Ci | 2.48E-04 | 3.94E-04 | No Releases | ** |
| | Iodine-135 | Ci | ** | ** | No Releases | ** |
| 3. | Particulates[1,2] | | | | | |
| | Strontium-89 | Ci | 4.06E-05 | 2.13E-04 | No Releases | ** |
| | Strontium-90 | Ci | ** | 2.43E-05 | No Releases | ** |
| | Cesium-134 | Ci | ** | ** | No Releases | ** |
| | Cesium-137 | Ci | 9.76E-06 | ** | No Releases | ** |
| | Cobalt-60 | Ci | 8.66E-05 | 5.97E-04 | No Releases | ** |
| | Cobalt-58 | Ci | ** | 3.74E-05 | No Releases | ** |
| | Manganese-54 | Ci | ** | 3.47E-04 | No Releases | ** |
| | Barium-Lanthanum-140 | Ci | ** | ** | No Releases | ** |
| | Antimony-125 | Ci | ** | ** | No Releases | ** |
| | Niobium-95 | Ci | ** | ** | No Releases | ** |
| | Cerium-141 | Ci | ** | 2.74E-06 | No Releases | ** |
| | Cerium-144 | Ci | ** | ** | No Releases | ** |
| | Iron-59 | Ci | ** | ** | No Releases | ** |
| | Cesium-136 | Ci | ** | ** | No Releases | ** |
| | Chromium-51 | Ci | ** | ** | No Releases | ** |
| | Zinc-65 | Ci | ** | ** | No Releases | ** |
| | Iron-55 | Ci | ** | 3.48E-04 | No Releases | ** |
| | Molybdenum-99 | Ci | ** | ** | No Releases | ** |
| 4. | Tritium[2] | Ci | 4.65E+00 | 1.58E+01 | No Releases | ** |

1 Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04 μCi/ml for required noble gases, 1.00E-11 μCi/ml for required particulates, 1.00E-12 μCi/ml for required Iodines, and 1.00E-06 μCi/ml for Tritium, as required by Technical Specifications, has been verified.

2 Tritium, Iron-55, and Strontium results for the second quarter were not received from the off-site vendor at the time of this report. These numbers include estimates and actual numbers will be included in the next Semi-Annual Report.

3 Contributions from purges are included.

# ATTACHMENT 4

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**GASEOUS EFFLUENTS – GROUND LEVEL RELEASES**

Ground level releases are determined in accordance with the Off-Site Dose Calculation Manual and Chemistry procedures.

| | | | CONTINUOUS MODE | | BATCH MODE **There were no batch releases during the reporting period.** | |
|---|---|---|---|---|---|---|
| | | | **1st QUARTER** | **2nd QUARTER** | **1st QUARTER** | **2nd QUARTER** |
| 1. | Fission Gases[1] | | | | | |
| | Argon-41 | Ci | ** | ** | | |
| | Krypton-85 | Ci | ** | ** | | |
| | Krypton-85m | Ci | ** | ** | | |
| | Krypton-87 | Ci | ** | ** | | |
| | Krypton-88 | Ci | ** | ** | | |
| | Xenon-127 | Ci | ** | ** | | |
| | Xenon-131m | Ci | ** | ** | | |
| | Xenon-133 | Ci | ** | ** | | |
| | Xenon-133m | Ci | ** | ** | | |
| | Xenon-135 | Ci | **8.73E-04** | **9.79E-04** | | |
| | Xenon-135m | Ci | ** | ** | | |
| | Xenon-137 | Ci | ** | ** | | |
| | Xenon-138 | Ci | ** | ** | | |
| 2. | Iodines[1] | | | | | |
| | Iodine-131 | Ci | ** | ** | | |
| | Iodine-133 | Ci | ** | ** | | |
| | Iodine-135 | Ci | ** | ** | | |
| 3. | Particulates[1,2] | | | | | |
| | Strontium-89 | Ci | **3.08E-08** | **1.06E-07** | | |
| | Strontium-90 | Ci | ** | **1.32E-08** | | |
| | Cesium-134 | Ci | ** | ** | | |
| | Cesium-137 | Ci | ** | ** | | |
| | Cobalt-60 | Ci | **1.15E-06** | **6.69E-07** | | |
| | Cobalt-58 | Ci | ** | ** | | |
| | Manganese-54 | Ci | **1.25E-08** | ** | | |
| | Barium-Lanthanum-140 | Ci | ** | ** | | |
| | Antimony-125 | Ci | ** | ** | | |
| | Niobium-95 | Ci | ** | ** | | |
| | Cerium-141 | Ci | ** | ** | | |
| | Cerium-144 | Ci | ** | ** | | |
| | Iron-59 | Ci | ** | ** | | |
| | Cesium-136 | Ci | ** | ** | | |
| | Chromium-51 | Ci | ** | ** | | |
| | Zinc-65 | Ci | ** | ** | | |
| | Iron-55 | Ci | **1.63E-07** | **2.00E-07** | | |
| | Molybdenum-99 | Ci | ** | ** | | |
| 4. | Tritium[1,2] | Ci | **3.75E+01** | **2.80E+01** | | |

1 Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk.

2 Tritium, Iron-55, and Strontium results for the second quarter were not received from the off-site vendor at the time of this report. These numbers include estimates and actual numbers will be included in the next Semi-Annual Report.

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES**

| | | | 1st QUARTER | 2nd QUARTER | EST. TOTAL ERROR, % |
|---|---|---|---|---|---|
| A. | Fission & Activation Products | | | | |
| | 1. Total release (not including Tritium, gases, alpha) | Ci | **No Releases** | **No Releases** | 5.00E+01 |
| | 2. Average diluted concentration during reporting period | μCi/ml | **No Releases** | **No Releases** | |
| B. | Tritium | | | | |
| | 1. Total release | Ci | **No Releases** | **No Releases** | 5.00E+01 |
| | 2. Average diluted concentration during reporting period | μCi/ml | **No Releases** | **No Releases** | |
| C. | Dissolved and Entrained Gases | | | | |
| | 1. Total release | Ci | **No Releases** | **No Releases** | 5.00E+01 |
| | 2. Average diluted concentration during reporting period | μCi/ml | **No Releases** | **No Releases** | |
| D. | Gross Alpha Radioactivity | | | | |
| | 1. Total release | Ci | **No Releases** | **No Releases** | 5.00E+01 |
| E. | Volumes | | | | |
| | 1. Prior to dilution | Liters | **No Releases** | **No Releases** | 5.00E+01 |
| | 2. Volume of dilution water used during release period | Liters | **No Releases** | **No Releases** | 5.00E+01 |
| | 3. Volume of dilution water available during reporting period: | Liters | **1.30E+11** | **1.26E+11** | 5.00E+01 |
| F. | Percent of Technical Specification Limits | | | | |
| | Percent of Quarterly Whole Body Dose Limit (1.5 mrem) | % | **No Releases** | **No Releases** | |
| | Percent of Quarterly Organ Dose Limit (5 mrem) | % | **No Releases** | **No Releases** | |
| | Percent of Annual Whole Body Dose Limit to Date (3 mrem) | % | **No Releases** | **No Releases** | |
| | Percent of Annual Organ Dose Limit to Date (10 mrem) | % | **No Releases** | **No Releases** | |
| | Percent of 10CFR20 Concentration Limit | % | **No Releases** | **No Releases** | |
| | Percent of Dissolved or Entrained Noble Gas Limit (2.00E-04 μCi/ml) | % | **No Releases** | **No Releases** | |

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**LIQUID EFFLUENTS RELEASED**

| | | BATCH MODE[1] | |
|---|---|---|---|
| **Nuclides Released** | | **1st QUARTER** | **2nd QUARTER** |
| Strontium-89 | Ci | **No Releases** | **No Releases** |
| Strontium-90 | Ci | **No Releases** | **No Releases** |
| Cesium-134 | Ci | **No Releases** | **No Releases** |
| Cesium-137 | Ci | **No Releases** | **No Releases** |
| Iodine-131 | Ci | **No Releases** | **No Releases** |
| Cobalt-58 | Ci | **No Releases** | **No Releases** |
| Cobalt-60 | Ci | **No Releases** | **No Releases** |
| Iron-59 | Ci | **No Releases** | **No Releases** |
| Zinc-65 | Ci | **No Releases** | **No Releases** |
| Manganese-54 | Ci | **No Releases** | **No Releases** |
| Chromium-51 | Ci | **No Releases** | **No Releases** |
| Zirconium-Niobium-95 | Ci | **No Releases** | **No Releases** |
| Molybdenum-99 | Ci | **No Releases** | **No Releases** |
| Technetium-99m | Ci | **No Releases** | **No Releases** |
| Barium-Lanthanum-140 | Ci | **No Releases** | **No Releases** |
| Cerium-141 | Ci | **No Releases** | **No Releases** |
| Tungsten-187 | Ci | **No Releases** | **No Releases** |
| Arsenic-76 | Ci | **No Releases** | **No Releases** |
| Iodine-133 | Ci | **No Releases** | **No Releases** |
| Iron-55 | Ci | **No Releases** | **No Releases** |
| Neptunium-239 | Ci | **No Releases** | **No Releases** |
| Praseodymium-144 | Ci | **No Releases** | **No Releases** |
| Iodine-135 | Ci | **No Releases** | **No Releases** |
| Dissolved or Entrained Gases | Ci | **No Releases** | **No Releases** |
| Tritium | Ci | **No Releases** | **No Releases** |

[1] No continuous mode release occurred during the report period.

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

| A.1 TYPE | Volume ($m^3$) Class | | | Activity[1] (Ci) Class | | |
|---|---|---|---|---|---|---|
| | A | B | C | A | B | C |
| 1. Spent Resins (Class A), Mechanical Filters (Class C) (Dewatered) | **6.81E+00** | **0** | **3.29E+00** | **1.64E+02** | **0** | **1.35E+02** |
| 2. Dry Active Waste (Contaminated Equipment) | **0** | **0** | **2.15E-02** | **0** | **0** | **5.48E+00** |
| 3. Irradiated Components/ Hardware (Non-Combustible Solid) | **0** | **0** | **1.72E+00** | **0** | **0** | **2.19E+04** |
| 4. Other: (to vendor for processing or consolidation) | | | | | | |
| a. Resins (Dewatered) | **5.55E+00** | **0** | **0** | **2.03E+00** | **0** | **0** |

[1] The estimated total error is 5.00E+01%.

Unit 1 **X** Unit 2 __ Reporting Period **January – June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

| A.1 TYPE | Container | Package | Solidification Agent |
|---|---|---|---|
| 1. Spent Resins, Mechanical Filters (Dewatered) | **HIC** | **Type B** | **None** |
| | | | |
| 2. Dry Active Waste (Contaminated Equipment) | **HIC** | **Type B** | **None** |
| | | | |
| 3. Irradiated Components/Hardware (Non-Combustible Solid) | **HIC** | **Type B** | **None** |
| . | **Metal Liner** | **Type B** | **None** |
| | | | |
| 4. Other: (To Vendor for Processing or Consolidation) | | | |
| a. Resins (Dewatered) | **HIC** | **STP** | **None** |

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

A.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

a. Spent Resins, Mechanical Filters (Dewatered)

| Nuclide (Resins) | Percent (Resins) |
|---|---|
| (1) Co-60 | 8.39E+01 |
| (2) Mn-54 | 1.16E+01 |
| (3) Ni-63 | 2.06E+00 |
| (4) Co-58 | 1.33E+00 |
| (5) Other | 1.11E+00 |
| **Nuclide (Filters)** | **Percent (Filters)** |
| (1) Fe-55 | 5.76E+01 |
| (2) Co-60 | 2.00E+01 |
| (3) Cs-137 | 1.36E+01 |
| (4) Mn-54 | 7.62E+00 |
| (5) Other | 1.18E+00 |

b. Dry Active Waste (Contaminated Equipment)

| Nuclide | Percent |
|---|---|
| (1) Fe-55 | 4.19E+01 |
| (2) Co-60 | 3.03E+01 |
| (3) Cs-137 | 1.55E+01 |
| (4) Mn-54 | 1.13E+01 |
| (5) Other | 1.00E+00 |

c. Irradiated Components/Hardware (Non-Combustible Solid)

| Nuclide | Percent |
|---|---|
| (1) Co-60 | 5.84E+01 |
| (2) Fe-55 | 3.76E+01 |
| (3) Ni-63 | 2.36E+00 |
| (4) Mn-54 | 1.60E+00 |
| (5) Other | 4.00E-02 |

d. Other: (to Vendor for Processing or Consolidation)

1. Resins (Dewatered)

| Nuclide | Percent |
|---|---|
| (1) Co-60 | 6.67E+01 |
| (2) C-14 | 2.61E+01 |
| (3 Mn-54 | 4.74E+00 |
| (4 Fe-55 | 1.20E+00 |
| (5) Other | 1.26E+00 |

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

A.3. SOLID WASTE DISPOSITION:

| Number of Shipments | Mode of Transportation | Destination |
|---|---|---|
| **4** | **Truck** | **Barnwell Facility Barnwell, SC** |
| **1** | **Truck** | **CNSI Consolidation Facility Barnwell, SC** |

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION): There were no shipments.

| Number of Shipments | Mode of Transportation | Destination |
|---|---|---|
| **0** | **0** | **0** |

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

C. SOLID WASTE SHIPPED OFF-SITE TO VENDORS FOR PROCESSING AND SUBSEQUENT BURIAL

Below is a summary of NMP-1 radwaste buried by vendor facilities during **January – June 2000**. These totals were reported separately from "10CFR61 Solid Waste Shipped for Burial" since (a) waste classification and burial was performed by the vendors, and (b) Technical Specification 6.9.1 requires reporting of "information for each class of solid waste (as defined by 10CFR61) shipped off-site during the reporting period." The following data represents the actual shipments made from the off-site vendors of our radwaste (e.g., compacted and non-compacted trash, dry non-compressible waste, asbestos, scrap metal, and resins) that was processed and commingled prior to burial.

C.1. TYPE OF WASTE – Compacted and noncompacted trash, dry non-compressible waste, asbestos, scrap metal, and resins processed by vendor facilities prior to burial.

| Burial Volume ($m^3$) | Activity (Ci) | Est. Total Error, % |
|---|---|---|
| **1.02E+01** | **5.93E-02** | **5.00E+01** |

C.2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION

| Nuclide | Percent |
|---|---|
| (1) Co-60 | 5.87E+01 |
| (2) Mn-54 | 1.26E+01 |
| (3) Cr-51 | 1.21E+01 |
| (4) Cs-137 | 8.50E+00 |
| (5) Fe-59 | 2.91E+00 |
| (6) Fe-55 | 1.55E+00 |
| (7) Co-58 | 1.44E+00 |
| (8) Other | 2.20E+00 |

C.3. SOLID WASTE DISPOSITION

| Number of Shipments | Mode of Transportation | Destination |
|---|---|---|
| **13** | **Truck** | **Clive, UT** |

Unit 1 X Unit 2 ___ Reporting Period **January - June 2000**

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

D. SEWAGE WASTES SHIPPED TO A TREATMENT FACILITY FOR PROCESSING AND BURIAL

There were no shipments of sewage sludge with detectable quantities of plant-related nuclides from NMP to the treatment facility during the reporting period.

## ATTACHMENT 7

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

**SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL (ODCM)**

There were no changes to the Unit 1 ODCM during the reporting period.

# ATTACHMENT 8

Unit 1 X Unit 2 ___ Reporting Period **January – June 2000**

**SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM (PCP)**

There were no changes to the Unit 1 PCP during the reporting period.

# ATTACHMENT 9

Unit 1 X Unit 2 __ Reporting Period **January - June 2000**

**SUMMARY OF INOPERABLE MONITORS**

There were no inoperable monitors for a period greater than 30 days during the reporting period.

# ATTACHMENT 10

## Update of Actual Data for the Fourth Quarter 1999

Unit 1 **X** Unit 2 __ Reporting Period **July - December 1999**

**UPDATE OF RELEASE AND DOSE DATA FOR GASEOUS (ELEVATED AND GROUND LEVEL) AND LIQUID EFFLUENTS**

Update of data using actual results from the off-site vendors for Strontium, Tritium, and Iron-55 for the fourth quarter 1999.

| | **GASEOUS 4th QUARTER 1999** | **LIQUID 4th QUARTER 1999** |
|---|---|---|
| Nuclide[1] | Activity (Ci) | Activity (Ci) |
| Sr-89 | ** | **No Releases** |
| Sr-90 | ** | **No Releases** |
| H-3 | **2.61E+01** | **No Releases** |
| Fe-55 | **7.08E-05** | **No Releases** |

| | | | GASEOUS | LIQUID |
|---|---|---|---|---|
| Particulates | | | | |
| | 1. Particulates with half-lives >8 days | Ci | **4.97E-04** | **No Releases** |
| | 2. Average release rate for period | µCi/sec (gaseous) µCi/ml (liquid) | **6.31E-05** | **No Releases** |
| Tritium | 1. Total release | Ci | **2.61E+01** | **No Releases** |
| | 2. Average release rate for period | µCi/sec (gaseous) µCi/ml (liquid) | **3.31E+00** | **No Releases** |

| Tritium, Iodines, and Particulates (with half-lives greater than 8 days) | | GASEOUS | LIQUID |
|---|---|---|---|
| 1. | Percent of Quarterly Dose Limit[2] | % | **2.25E-01** (Quarterly) | **No Releases** (Quarterly) |
| 2. | Percent of Annual Dose Limit to Date[2] | % | **4.84E-01** (Annual) | **No Releases** (Annual) |
| 3. | Percent of Organ Dose Rate Limit (Gaseous)(Quarterly) -Dose Limit (Liquid) (Quarterly & Annual) | % | **4.51E-03** (Quarterly) | **No Releases** (Quarterly) **No Releases** (Annual) |
| 4. | Percent of 10CFR20 Concentration Limit[3] (Liquid) | % | | **No Releases** |
| 5. | Percent of Dissolved or Entrained Noble Gas (Liquid) | % | | **No Releases** |

[1] Concentrations less than the lower limit of detection, as required by Technical Specifications or station procedures are indicated with a double asterisk.

[2] The dose is to the whole body for liquid effluents and to the maximally exposed organ for gaseous effluents.

[3] The percent of the 10CFR20 concentration limit is based on the average concentration during the quarter.